No. 89-1215

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IN THE

# Supreme Court of the United States

OCTOBER TERM, 1989

INTERNATIONAL UNION, UNITED AUTOMOBILE, AEROSPACE AND AGRICULTURAL IMPLEMENT WORKERS OF AMERICA, *et al.*,

*Petitioners*,

—v.—

JOHNSON CONTROLS, INC.,

*Respondent*.

**PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SEVENTH CIRCUIT**

**BRIEF *AMICI CURIAE* IN SUPPORT OF PETITIONERS BY AMERICAN PUBLIC HEALTH ASSOCIATION; AMERICAN NURSES ASSOCIATION; AMERICAN SOCIETY OF LAW AND MEDICINE; ASSOCIATION FOR WOMEN IN SCIENCE; DEPARTMENT OF PUBLIC HEALTH, COMMONWEALTH OF MASSACHUSETTS; ENVIRONMENTAL DEFENSE FUND; EXECUTIVE OFFICE OF LABOR, COMMONWEALTH OF MASSACHUSETTS; OCCUPATIONAL AND ENVIRONMENTAL REPRODUCTIVE HAZARDS CLINIC AND EDUCATION CENTER; SOCIETY OF AMERICAN LAW TEACHERS; TOXICS USE REDUCTION INSTITUTE; NICHOLAS A. ASHFORD, J.D., PH.D.; DAVID BELLINGER, PH.D.; EULA BINGHAM, M.D.; VILMA R. HUNT, B.D.S.; SUSAN KLITZMAN, DR. P.H.; PHILIP J. LANDRIGAN, M.D.; MARC ALAN LAPPE, PH.D.; MARVIN S. LEGATOR, M.D.; DONALD R. MATTISON, M.D.; DAVID MICHAELS, PH.D., M.P.H.; HERBERT L. NEEDLEMAN, M.D.; ANTHONY ROBBINS, M.D.; JOHN F. ROSEN, M.D.; JEANNE STELLMAN, PH.D.; and DIRECTORS OF OCCUPATIONAL MEDICINE PROGRAMS (EDDY BRESNITZ, M.D.; MARK R. CULLEN, M.D.; STEVE HESSL, M.D.; PHILIP J. LANDRIGAN, M.D.; LINDA ROSENSTOCK, M.D.; LAURA WELSH, M.D.)**

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## INTEREST OF AMICI CURIAE

This brief amici curiae is filed in support of Petitioners pursuant to Rule 37.3 of the Rules of this Court.[1/]

Amici are individuals and organizations concerned primarily with the medical and public health implications of the policy adopted by Johnson Controls. that excludes fertile women from employment opportunities. Amici do not believe that there is a sound scientific basis to focus attention only on women workers, because all workers face significant health risks from occupational exposures such as those at Johnson Controls. This kind of policy disserves overall promotion of workplace safety and health, as well as the health of

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1/ The parties have consented to the filing of this brief, and their letters of consent are being filed with the Clerk of this Court pursuant to Rule 37.3 of the Rules of this Court.

women and children, who lose income and benefits that are essential to their health and well-being.

Some amici have published or participated in scientific research cited by Johnson Controls in support of its policy. They seek to appear as amici to clarify the nature of their research or other activities and to comment on its use by Johnson Controls and its witnesses. Amici believe that their participation in this appeal will aid the Court in evaluating the scientific legitimacy of Johnson Controls' policy and in appreciating its larger implications for nationwide public health policy.

Individual Statements of Interest for Amici Curiae are set out in an Appendix to this brief.



## SUMMARY OF ARGUMENT

### Introduction

This case revisits familiar terrain. Once again, women's biological role as childbearer is advanced as a rationale for discrimination that would deny women lucrative employment or, in a modern twist, require them to be sterilized to qualify for full employment rights. Johnson Controls' policy, sweeping in scope and virtually unlimited in its implications,[2/]

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2/ The policy excludes all women who cannot prove they are incapable of bearing children from all jobs in which any employee has recorded a blood lead level of 30 ug/dl during the preceding year, or in which the job site yielded an air lead sample in excess of 30 ug/m3 during the preceding year, or in which the line of progression would lead to such a job. International Union, UAW v. Johnson Controls, Appendix to the Petition for Certiorari (hereinafter "Pet. App.") at 5a-6a and 97a (Easterbrook, dissenting). Fertile women applicants are also excluded from all jobs as a result of the policy. Johnson Controls v. California Fair Employment & Housing Commission, 218 Cal.App. 3d 517 (1990).

(Blood lead levels are expressed herein as

(continued...)

treats all women as "childbearing vessels," and assumes that children will be better off if women do not work -- at least not in their battery plants. Women workers, however, are not always pregnant, the risks of employment are not confined to them, and employment brings them and their families concrete benefits. This case thus raises critical and timeless questions about who should assess, manage and balance the risks of everyday life, and whether that process should be different for women and men.

In the past, exclusion of women from hazardous employment was justified to protect the "future well-being of the race," Muller v. Oregon, 208 U.S. 412, 422

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2/ (...continued)
micrograms (of lead) per deciliter (of blood) (ug/dl) which corresponds closely to micrograms per 100 grams (ug/100g) and micrograms per 100 milliliters (ug/100ml); air lead levels are expressed as micrograms per cubic meter ($ug/m^3$).



(1908). In an era in which workplace protection for both sexes was foreclosed,3/ the attainment of "half a loaf" of workplace protection may have seemed appropriate. This "protection" was to prove doubly inadequate, however, as women lost economically and men remained subjected to harsh working conditions.4/

The Fair Labor Standards Act, 29 U.S.C. §201, et seq., reflected legislative recognition that all workers required protection from onerous working conditions. Similarly, the Occupational Safety and Health Act ("OSH Act"), 29 U.S.C. §651, et

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3/ In Lochner v. New York, 198 U.S. 45 (1905), the Supreme Court refused to permit such limits on the "right of contract." Muller, however, permitted state-imposed limits on the employer-employee relationship, based on the special biological vulnerability of women and the need to safeguard the "future well-being of the race."

4/ See generally, A. Kessler-Harris, Out to Work, (1982); J. Baer, The Chains of Protection (1978).

seq., recognized the vulnerability of both sexes to work-related health risks, and the need to establish exposure limits and workplace standards that would insure, "to the extent feasible" that "every working man and woman" would enjoy a "safe and healthful" workplace. 29 U.S.C. §651(b) (emphasis added).

Notwithstanding this evolutionary process, Johnson Controls' position differs little from that taken by the advocates and defenders of protective labor legislation. Johnson asserts that women must be involuntarily excluded from such jobs essentially to protect "the future well-being of the race." This position has been rejected on the merits by federal health authorities, as discussed infra. Moreover, in Title VII of the Civil Rights Act of 1964 ("Title VII"), 42 U.S.C. §2000e, et



seq., Congress determined that, even if women do require a greater level of workplace health protection, they are still entitled to equal opportunity in employment.

* * *

The legal issues presented by this case are relatively straightforward. Title VII prohibits this historically-familiar effort to limit the rights and daily activities of women in the name of future generations, and it was plainly the intent of Congress to prevent women from being subjected to continued economic disadvantage because they are or might be pregnant. See Point I, infra.

The failure of the court below to enforce Title VII enmeshed it in a dispute over the scientific validity of a discriminatory policy. Title VII

litigation was never intended to be the forum for such disputes: Congress has decided that discrimination is contrary to public policy and that workplace safety standards are appropriately established by federal regulatory authorities operating on the assumption that both men and women will be working.

As this case demonstrates, the inevitable result of establishing workplace health rules as an accidental by-product of discrimination litigation would be to undermine the work of health and safety officials charged with assessing and regulating workplace hazards. Resolving these issues in the regulatory forum intended by Congress, in contrast, would facilitate comprehensive risk management that would consider the risks of employment, the overall benefits and



detriments of various policy alternatives, and all technologically feasible options for reducing risks. See Point II, infra.

## ARGUMENT

### I. Title VII Litigation Is Not The Appropriate Forum For Addressing Workplace Safety And Health Concerns Which Are Addressed Under Other Federal Laws.

Sex discrimination, like race discrimination, is a recognized economic evil, contributing materially to the depressed economic status of women and the families who depend on them. In recognition of this fact, Congress enacted Title VII and subsequently amended it[5/]

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5/ The Pregnancy Discrimination Act ("PDA"), Pub. L. 95-555, 42 U.S.C. §2000e(k), provides that sex discrimination includes discrimination on the basis of "pregnancy, childbirth or related medical conditions; and [that] women affected by pregnancy, childbirth or related medical conditions shall be treated the same for all employment related purposes...as other persons not so affected but similar in their ability or inability to work."

to clarify that the statute prohibits "discrimination [against working women] on the basis of their childbearing capacity [and that it does so] for all employment related purposes."6/

Denial of employment opportunity in the name of health protection (for the fetus) was a familiar rationale for denying women employment opportunities, and it was raised in the legislative debates over the PDA. The Chamber of Commerce opposed the PDA on the ground, inter alia, that it "would prevent an employer from refusing certain work to a pregnant employee where such work posed a threat to the health of either the mother-to-be or her unborn child.... [I]njury to the fetus might give

6/ Committee on Labor and Human Resources, U.S. Senate, 9th Cong., 2d Sess., Legislative History of the Pregnancy Discrimination Act of 1978 (1979) (hereinafter "Legis. Hist.") at 61, 63.



the child a cause of action against the employer...."7/ Senator Hatch pursued the issue:

> Senator Hatch. Do you think there would arise a whole slew of OSHA problems, occupational safety and health problems as a result of pregnant women?
>
> Dr. Hellegers. . . .[Hazardous] agents are just as likely to affect the ovaries of nonpregnant women and there are in fact today companies that will not hire women on that specific basis.
>
> But you never dream of thinking that the same agents may also affect the testicles of men. So if we are talking about untoward effects of industrial processes on human procreation, we have to look at the effects on testicles, the effects on ovaries and the

7/ Prepared Statement of G. Brockwel Heylin, Labor Relations Attorney, Chamber of Commerce of the United States. Discrimination on the Basis of Pregnancy: Hearings on S. 995 Before the Subcomm. on Labor of the Sen. Comm. on Human Resources, 95th Cong., 1st Sess. 482 (1977); Legislation to Prohibit Sex Discrimination on the Basis of Pregnancy: Hearing on H.R. 5055 and H.R. 6075 Before the Subcomm. on Employment Opportunities of the House Comm. on Education and Labor, 95th Cong., 1st Sess. 84 (1977).

effects on fetuses, all three, and we aren't doing much of that.[8]

As the exchange suggests, where protection is necessary, it is required for both sexes. That was, in any event, the plain legislative commitment expressed in the PDA; the standard governing employment of women "affected by pregnancy, childbirth, or related medical conditions" is "ability or inability to work."[9]

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[8] Discrimination on the Basis of Pregnancy: Hearings on S. 995 Before the Subcomm. on Labor of the Sen. Comm., on Human Resources, 95th Cong., 1st Sess. 67 (1977) (Testimony of Andre E. Hellegers, M.D.).

[9] An employee's sex can be taken into account only if sex is a "bona fide occupational qualification" or "BFOQ." 42 U.S.C. §2000e-2(e)(1). Dothard v. Rawlinson, 433 U.S. 321 (1977), and see Western Air Lines v. Criswell, 472 U.S. 400 (1985) (age discrimination case). Both the PDA and the BFOQ provision reflect Congressional intent to establish "ability to work" as the criterion in securing women's employment rights. Any uncertainty in this regard has been clarified by the PDA's specific designation of "ability or inability to work" as the correct

(continued...)



Congress endorsed non-discrimination for women workers and rejected the proposition that women can be denied employment opportunities to "protect" them from potentially hazardous employment. This is not surprising, given the fact that it had recently secured the right of "every working man and woman" to a "safe and healthful" workplace. 29 U.S.C. §651

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[9] (...continued)
standard.

The statute provides no other defense to facial sex or pregnancy discrimination, Los Angeles Dept. of Water & Power v. Manhart, 435 U.S. 702 (1978), Phillips v. Martin Marietta Corp., 400 U.S. 542 (1971), and the defendant bears the burden of proof as to the affirmative defense. Dothard v. Rawlinson, 433 U.S. 321 (1977). Cf. Price Waterhouse v. Hopkins, ___ U.S. ___, 109 S.Ct. 1775, 1789 (1989) (plurality opinion), id. at 1805 (O'Connor, J., concurring), and id. at 1811 (Kennedy, J., dissenting); and Trans World Airlines v. Thurston, 469 U.S. 111 (1985). Congress explicitly rejected a cost-based defense: "...even a very high cost could not justify continuation of the policy of discrimination..." Legis. Hist. at 48. And see Manhart, 435 U.S. 702, and Newport News Shipbuilding & Dry Dock Co. v. EEOC, 462 U.S. 669 (1983).

(b)(1). The OSH Act requires employers to maintain a workplace "free from recognized hazards that are causing or are likely to cause death or serious physical harm," §654(a)(1), and it requires the Secretary of Labor to promulgate health and safety standards that assure, to the extent feasible, "that no employee will suffer material impairment of health or functional capacity." §655(b)(5).10/ Congress

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10/ [OSHA] has statutory authority to protect the fetuses of lead-exposed working mothers.... Harm to fetuses, as OSHA contends, is a material impairment of the reproductive systems of the parents.

United Steelworkers of America v. Marshall, 647 F.2d 1189, 1256 n.96 (D.C.Cir.1980), cert. denied, 453 U.S. 913 (1981). And see id. at 1238 n.74.

OSHA has regulated occupational exposures to two substances other than lead in whole or in part because of their reproductive effects. They are dibromochloropropane ("DBCP") and ethylene oxide ("EtO"). U.S. Congress, Office of Technology Assessment, Reproductive Health Hazards in the Workplace, 199-203 (1985).



therefore had good reason, in 1978, to assume that the workplace would be safe for working women, pregnant or not, and that questions about how to accomplish this result would be addressed through the regulatory mechanisms that had been established to research and control work-related hazards.11/

An exception to the non-discrimination principle to protect the health of any group of workers was thus unwarranted. Indeed, OSHA was required to protect workers even in the face of scientific uncertainty by relying on the "best available evidence," 29 U.S.C. §655(b)(5),

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11/ The National Institute for Occupational Safety and Health ("NIOSH") was established as the research authority, 29 U.S.C. §671, and OSHA was set up in the Department of Labor as the regulatory agency. 29 C.F.R. §1910.4 (1989).

and was not to "be paralyzed by debate surrounding diverse medical opinion."12/

Title VII litigation was thus never intended to be a forum for addressing occupational health and safety issues or for identifying groups of workers who may require additional protection from occupational hazards.13/ The lower court's misguided attempts to do so led to a gross distortion of the science of risk assessment and risk management and ultimately produced not only bad law but bad public health as well.

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12/ Senate Comm. on Labor and Public Welfare, Legislative History of the Occupational Safety and Health Act of 1970, at 848 (1971), cited in Latin, Good Science, Bad Regulation and Toxic Risk Assessment, 5 Yale J. on Reg. 89, 135 and n.226 (1988).

13/ For a discussion of the implications of the theory adopted by the court of appeals to racial and ethnic sub-groups, see Brief amicus curiae of the NAACP Legal Defense and Education Fund.



## II. The Lower Court's Failure To Enforce Title VII As Written Threatens Serious Injury To The Public Health.

The Court of Appeals' misapplication of Title VII law enmeshed it in a factual dispute over the scientific validity of Johnson Controls' policy. This was plainly unnecessary to resolve the Title VII issues, as noted above. Of equally great significance is the fact that this approach has vast negative implications for protection of worker health, by allowing courts to make determinations about what is "safe" for whole subclasses of the employed population on the basis of private litigation, the focus of which is an entirely different and more limited set of issues and interests.

This concern is more than just speculative. Indeed, it is borne out in this case by the court of appeals'

acceptance of Johnson Controls' contention that its policy is justifiable because fetuses are especially at risk, when federal health regulators have concluded that men, women and fetuses all require the same degree of protection from the hazardous effects of lead exposure.

### A. The Court Of Appeals' Ruling Provides Less Protection To Workers Than Federal Regulators Conclude Is Necessary.

#### 1. The Findings of OSHA and EPA

In 1978, OSHA promulgated a Final Standard for Occupational Exposure to Lead.[14/] The agency conducted one of the most comprehensive rulemakings ever undertaken in the occupational health

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14/ 29 C.F.R. §1910.1025 (1989). The Preamble to the Standard appears at 43 Fed. Reg. 52952 (1978) (hereinafter "Preamble") and the Attachments appear at 43 Fed. Reg. 54386 (1978) (hereinafter "Attachments").



context. See 43 Fed.Reg. 52953 (1978). Its findings were exhaustive and were sustained on appeal. United Steelworkers of America v. Marshall, 647 F. 2d 1189.

The position now advanced by Johnson Controls was pressed in that rulemaking by the Lead Industries Association. Industry representatives argued, precisely as Johnson Controls does now, that the fetus is differentially susceptible to injury to lead and that fetal safety can only be assured if women of childbearing age are excluded from employment altogether. OSHA considered the matter at some length:

> No topic was covered in greater depth or from more vantage points than the subject of women in the lead industry.[15/]

OSHA rejected the industry position:

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15/ Preamble, supra, n. 14, 43 Fed. Reg. at 52960.

> The record in this rulemaking is clear that male workers may be adversely effected by lead as well as women. Male workers may be rendered infertile or impotent, and both men and women are subject to genetic damage which may affect both the course and outcome of pregnancy. Given the data in this record, OSHA believes there is no basis whatsoever for the claim that women of childbearing age should be excluded from the workplace in order to protect the fetus or the course of pregnancy.16/

Indeed, OSHA's concern about the reproductive effects of lead is reflected in provisions of the Standard that provide an extra measure of safety for both males and females planning to have children, an

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16/ Id. at 52966. OSHA relied on both human epidemiological evidence and experimental data. See Attachments, supra n. 14 at 54389-96, 54421-24. OSHA found that male exposure can cause "a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can all occur.... Germ cells can be affected by lead and cause genetic damage in the egg or sperm...." 29 C.F.R. § 1910.1025, Appendix C, II(5).



approach more protective than that adopted by Johnson Controls. An "action level of 30 ug/m3....education and training .... [e]nvironmental monitoring, biological monitoring, and [access to] medical records... medical removal protection [and use of a] powered air purifying respirator" were all contemplated as appropriate and feasible techniques to maintain worker blood leads at or below 30 ug to insure greater reproductive safety.17/

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17/ Attachments, supra n. 14 at 54423 (1978) and see Preamble, supra n. 14 at 52966. OSHA requires that even if air levels are within the permissible exposure limits, respirators be made available to workers, both males and females, who "intend to have children in the near future, and want to reduce the level of lead in [the] body to minimize adverse reproductive effects." 29 C.F.R. §1910.1025, Appendix B, Employee Standard Summary, §IV (1988). Respirators can effect a reduction of air lead exposure by a factor of 10 to 2000. 29 C.F.R. §1910.1025 (f)(iii)(2), Table II. Respiratory Protection for Lead Aerosols. Medical removal protection is also available to reduce worker lead levels. Id., Appendix B, §IX.

The Lead Industries Association specifically challenged these findings and other aspects of the Standard. United Steelworkers of America v. Marshall, 647 F.2d 1189. The Court of Appeals for the District of Columbia characterized the challenge as "an attack on the scientific accuracy of OSHA's studies," id. at 1257, and noted that OSHA had "abundant support" for its conclusions. Id. The court upheld the "reasonable and conscientious interpretations of the agency." Id. at 1258.18/

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18/ Johnson Controls' policy targets 30 ug as the level of unacceptable risk for women. This precisely the level at which OSHA determined in 1978 that both men and women face equivalent risks of reproductive injury. Johnson Controls argues that the fetus is differentially susceptible at lower blood levels, but this argument is irrelevant to its policy, which is set at the 30ug level. Moreover, even this claim is refuted by regulatory findings linking very low lead exposures with life-threatening risks to males. See pp. 24-26, infra.



The court below ignored OSHA's conclusions, stating that the lead standard is outdated. Pet. App. 54a. New developments have indeed confirmed the universal nature of the risks posed by lead at lower levels. The court below addressed some of those new developments, but not all.19/

The EPA has recently reviewed the developments in knowledge about lead's toxic effects in its on-going regulation of the content of lead in fuel. It cited "newly developed information" establishing

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19/ In addition to evidence of cardiovascular risk from lead, recent evidence supports OSHA's conclusions about male reproductive risks. See, e.g., Winder, Reproductive and Chromosomal Effects of Occupational Exposure to Lead In the Male, 3 Repro. Tox. 221 (1989), and Uzych, Teratogenesis and Mutagenesis Associated with Exposure of Human Males to Lead: A Review, 58 Yale J. of Bio. and Med. 9 (1985)(both reviewing the literature).

a relationship between exposure of adult males and cardiovascular disease.20/

EPA has documented cardiovascular risks to men at low blood lead levels in the range of 10 ug/dl or less.21/

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20/ Environmental Protection Agency, Regulation of Fuel and Full Additives, Supplemental Notice of Proposed Rulemaking, 50 Fed. Reg. 9400, 9401 (1985).

21/ The EPA based its conclusions about cardiovascular risk on, inter alia, Pirkel, et al., The Relationship Between Blood Lead Levels and Blood Pressure and its Cardiovascular Risk Implications, 121 Am.J. Epid. 246 (1985). The Pirkel study examined data from 20,322 white men between the ages of 40-59. After controlling for all known variables, a statistically significant relationship of blood pressure to blood lead levels was found. There was no evidence of a threshold level below which lead had no effect on blood pressure. The researchers also quantified the impact of a reduction in blood lead levels in adult males from 16.7 ug/dl to 10.5 ug/dl over a ten-year period. The 37% decrease in mean blood levels resulted in a 4.7% decrease in the incidence of fatal and nonfatal myocardial infarction, a 6.7% decrease in the incidence of fatal and nonfatal strokes, and a 5.5% decrease in the incidence in death from all causes. These are conservative predictions. The researchers excluded persons with a history of myocardial infarction or stroke from the study and assumed that lead only affects blood pressure.



Accordingly, it predicted that reduction of lead in gasoline (to 0.1 g/gal.) would result in 5,350 fewer myocardial infarctions; 1,115 fewer strokes; and 5,160 fewer deaths among white males aged 40 to 59 in 1986 alone. Extending the analysis to men of other ages and to nonwhites "would substantially increase these estimates." EPA, Costs and Benefits of Reducing Lead in Gasoline: Final Regulatory Impact Analysis, at V-35 (1985).22/

In sum, the lower court's conclusion that the fetus is vulnerable to injury from lead at workplace levels that are "safe" for adults simply has no support in the

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22/ See also Marcus and Cothern, The Characteristics of an Adverse Effect: Using the Example of Developing a Standard for Lead, 16 Drug Metabolism Rev. 423, 436 (1985-86): "Lead's effect on blood pressure is a long-term effect that produces mortality. Tens of thousands of lives would be saved from premature death if the blood lead levels were decreased...."

public record, and health regulators have plainly concluded that the contrary is true.[23] While some might make a value judgment that fetuses should be protected, even when human beings remain at risk, Title VII makes the decision selectively to protect the fetus in utero a sex-discriminatory act, as noted in Point I, supra, and the OSH Act commands that employers protect the health of both working men and women.[24]

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23/ Efforts to control occupational lead exposure have a long and infamous history, despite the well-known toxic effects of the chemical. See e.g., Rosner & Markowitz, 'A Gift of God'?: The Public Health Controversy Over Leaded Gasoline In The 1920s, 75 Am.J.Pub.Health 344 (1985).

24/ While the protection of women includes protection of the fetus if a woman happens to be pregnant, United Steelworkers v. Marshall, 647 F.2d at 1256 n.96, it plainly includes a great deal more than that.



**2. Evidence On Which The Lower Court Relied Is Inconsistent With The Findings Of Federal Health Authorities**

The contrast between the record created by OSHA and EPA and the record in the court below demonstrates some of the difficulties of setting occupational health rules through private litigation. Here, the employer's sole concern was to win justification for a previously adopted policy, which had resulted in the sterilization of at least one woman worker, Joint Appendix (hereinafter "Jt.App.") at 36, ¶79(f), not to explore the hazards of the workplace and devise rational policy.[25] The limited scope of the inquiry may account for the misleading nature of the evidence on which the court

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25/ If anything, the employer had an incentive to conceal all risks except the one it has, for whatever reason, chosen to recognize.

of appeals relied, lacking its own expertise and unwilling to accept the views of the petitioners' experts.

The company's experts failed to evidence familiarity with the analyses and findings of OSHA and EPA and selectively relied on the data on prenatal effects, taken out of context, as noted in a Commentary by Herbert L. Needleman, M.D., and David Bellinger, Ph.D.,[26/] whose research played a central role in Johnson Controls' defense.[27/] The Commentary

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26/ Needleman and Bellinger, Commentary: Recent Developments, 46 Envtl. Res. 190 (1988). Needleman and Bellinger wrote the commentary "to assure that our research is interpreted fully and accurately and that it be placed in the proper biological and epidemiological context."

27/ Defendant's experts identify Needleman and Bellinger's research as "the Boston study." See Jt. App. 199, ¶6 (Chisolm); Jt.App. 187, ¶8 (Whorton); Jt.App.72, ¶4 (Hammond); Jt.App.158 (Fishburn). "The Boston Study" is described in Needleman, et al., The Relationship Between (continued...)



describes both the nature and limits of this research. The studies detected a number of correlations between umbilical cord blood lead levels and physical and neuropsychological development in children, but they "did not measure paternal exposure and thus cannot rule this out [as] a contributing factor." Id.

Bellinger and Needleman note the significance of recent data demonstrating "an association without apparent threshold between exposure to lead and blood pressure in adult males," and suggest that future research will further confirm the harmful effects of lead at very low levels on male reproductive function. As a result, they

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27/ (...continued)
Prenatal Exposure to Lead and Congenital Anomalies, 251 JAMA 2956 (1984) and Bellinger, et al., Longitudinal Analyses of Prenatal and Postnatal Lead Exposure and Early Cognitive Development, 316 New Eng. J. Med. 1037 (1987).

conclude: "we do not believe that present data provide a sufficient scientific basis for applying different lead exposure standards to male and female workers." Id. at 191. They specifically repudiate any inference that men exposed to low levels of lead, or their offspring, are safe, because such a conclusion "is without logical foundation and insupportable on empirical grounds."[28/] Id.

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28/ As Needleman and Bellinger note, conclusions cannot be drawn from an absence of evidence or a relative imbalance in the data on male and female risks. See also Deposition of Michael Silverstein, M.D., Jt. App. 202, 220-24.

Scientific uncertainty compounds the difficulties created by the lower court's misallocation of the burden of proof. See n.9, supra. Even assuming arguendo that the BFOQ defense could be applied in this context, the employer would be required to prove that men are not at risk in order to justify a sex-based policy. Instead, the court of appeals required the victims of proven discrimination also to prove that the employer's acts were unjustifiable, by affirmatively proving the risk to the children of male workers. In the absence of equivalent evidence of risks to men, this showing could not be

(continued...)



Similarly, Dr. John F. Rosen, an amicus herein, and head of the Centers for Disease Control ("CDC") Childhood Lead Poisoning Prevention Ad Hoc Advisory Committee, which advised the CDC on its Statement Preventing Lead Poisoning in Young Children (1985), also cited by Johnson Controls,[29/] repudiates Johnson Controls' position. He believes that Johnson Controls' reliance on the CDC report is misplaced. The CDC looked only at the devastating effects of lead on children and concluded that all exposures should be reduced. A study focussing on other subgroups in the population, such as

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28/ (...continued)
made. The employer would then be permitted to maintain the discriminatory policy, effectuating the scientifically invalid "negative inference."

29/ See Affidavit of Anthony R. Scialli, M.D., Jt. App. 179-80 ¶4.

males with high blood pressure or otherwise at risk of cardiovascular disease, would undoubtedly render a similar recommendation for that population.30/

In addition to their failure to address the conclusions of OSHA and EPA and their selective citation of the data, Johnson Controls' experts are themselves guilty of inconsistency and contradiction. For example, Dr. Whorton testified that lead does not appear to be of "significant functional harm" to the reproductive system of male workers at the current OSHA standard of "50 micrograms per deciliter of whole blood."31/ However, he failed to

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30/ See Statement of Interest of amicus curiae, John F. Rosen, M.D.

31/ Affidavit of M. Donald Whorton, M.D., Jt. App. 186, ¶¶6-7. This is a misstatement of the OSHA recommended standard for blood lead, which is 40 ug/dl. See Preamble, supra n. 14, at 52963 (B)(1). To achieve this level of protection, OSHA (continued...)



address the significance of subtle male reproductive injury, which he had previously recognized:

> The elevation in risk of spontaneous abortion observed in this combination of a textile working wife and a metallurgical factory husband suggests that there were <u>separate mutagenic effects on the germ cells of husband and wife which resulted in increased spontaneous abortions when they occurred together.</u> A combination of mutagenic effects on spermatogenesis and teratogenic effects on the embryo could also have occurred....32/
>
> These data suggest that two separate factors are acting in a synergistic manner: one on the father and one on the mother.

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31/ (...continued) set an air lead level of 50 ug/m3 based on an 8 hour time-weighted average. Id.

32/ M. Donald Whorton, Adverse Reproductive Outcomes: The Occupational Health Issue of the 1980s, 73 Am.J.Pub.Health 15 (1983)(emphasis added) (commenting on Hemminki, et al., Spontaneous Abortion in an Industrialized Community in Finland, 73 Am.J.Pub.Health 32 (1983). Males working in the metallurgical factory were exposed to lead and other toxins).

> Neither was readily apparent (except for one textile factory) unless the occupations of both husband and wife were merged....

Id.

One of defendant's experts testified that fetal exposures to low lead levels result in a "clear decrement" in mental development in the child,[33] although he had co-authored an article that concluded:

> With the lead exposed child, if the environment is rich, if the infant is constitutionally robust, and if proper medical care and educational services are present, then such an infant might compensate for any putative neurological damage due to lead.[34]

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33/ Affidavit of Paul B. Hammond, Ph.D., Jt. App. 71-72, ¶¶3-4.

34/ Bornschein, Hammond, Dietrich, et al., The Cincinnati Prospective Study of Low Level Lead Exposure and Its Effects on Child Development: Protocol and Status Report, 38 Envtl. Res. 17 (1985). See also, Dietrich et al., Low Level Fetal Lead Exposure Effect on Neurobehavioral Development in Early Infancy, 80 Pediatrics 721, 729 (1987). (continued...)



Another of Johnson Controls' expert witnesses has written that lead is "one of the most dangerous elements to which we expose workers of both sexes." "The increase in adverse pregnancy outcome associated with lead exposure of the mother or father has been described for decades."[35] A fourth expert testified against EPA proposals to reduce lead in gasoline and in favor of a higher "action level" of blood lead in children.[36]

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34/ (...continued) Amici cite this material not in support of its conclusions but solely for purposes of demonstrating credibility problems in the record created in the effort to justify this policy.

35/ Scialli, Sexism in Toxicology, 3 Repro. Tox. 219, 220 (1989)(emphasis added). The author nonetheless concludes that there is an "absolute need to protect the fetus." Id.

36/ This testimony was presented by J.Julian Chisolm, Jr., M.D. on behalf of the International Lead Zinc Research Organization, the research arm (continued...)

The policy adopted by Johnson Controls was stimulated, in large part, by the efforts of Charles Fishburn, M.D. Jt.App.153. And see id. at 157-58 (all women excluded previously). Dr. Fishburn had previously explained the basis for his opinion that fertile women should be excluded from lead-exposed jobs in a letter submitted to OSHA:

> I have taken the position of not assigning fertile females to lead exposures since the beginning of my practice in 1969. Unless the female is biologically sterile she can conceive a pregnancy even with the best methods of birth control....
>
> Even though OSHA and other agencies of the Federal Government believe that we can make working environments safe for all populations, "namely, susceptible groups", it is my opinion that in any occupational exposure, regardless of controls, there is a risk of injury or the development of occupational disease due to accident....
>
> For medical legal reasons, as a knowledgeable physician I must take this position in order to protect the unborn child from the pressures of society. I feel that regardless of the sophistication of man-made laws the physician still must abide by the laws governing the natural environment and the laws of nature.

Occupational safety and Health Admin., Docket H-004 (Lead), Exhibit 236. Notwithstanding the company's attempt in this litigation to characterize the policy as based on newly-developed information, the public record reflects that it was instead founded on Dr. Fishburn's own stereotypical "medical legal opinions," in

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36/ (...continued)
of the Lead Industries Association. The "action level" refers to the blood lead level at which medical effects might be seen. EPA proposed 15 ug/dl; Dr. Chisolm supported 25-30 ug/dl. Dr. Chisholm testified against reduction of lead in gasoline in Regulation of Fuel and Fuel Additives, 1982: Hearings Before the EPA at 696, 713-14; Automotive Lead Emissions, 1971: Hearings Before the Panel on Environmental Science & Technology of the Subcommittee on Environmental Pollution of the Committee on Public Works, 93d Cong., 2d Sess. 34 (1974). See also Christman v. American Cyanamid Co., Civ. Action No. 80-0024 (P) (N.D.W.Va.) Deposition of J. Julian Chisolm, Jr., M.D., Aug. 26, 1983 at 158-73.

disregard of OSHA's views, and in disregard of the published data at that time indicating that lead also affects the offspring of male workers.[37/]

The narrow litigation focus led the employer (and the court) to ignore federal health agencies' findings, to misconstrue evidence, to cite data selectively, and to rely on testimony contradicted in the public record.[38/] The improper grant of summary judgment exaggerated the problem, but did not create it: even a full trial

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37/ A. Hamilton, Lead As a Race Poison, Industrial Poisons In The United States 111, 114 (1925) (lead may "cause injury to the paternal germ cell").

38/ Credibility problems of the sort apparent in this case are not confined to litigation. Individuals have institutional loyalties and personal stakes that color their views. See Note, Trans-Science in Torts, 96 Yale L.J. 428 (1986), Latin, Good Science, Bad Regulation and Toxic Risk Assessment, 5 Yale J. on Reg. 89 (1988). In the regulatory arena, however, individual views are more diluted and counter-balanced because of the expanded scope of the inquiry.



could and should not convert a Title VII case into a forum for addressing occupational health policy.

The case-by-case approach to occupational safety issues would generate conflicting decisions, as has already occurred with regard to Johnson Controls' policy. The California Court of Appeals recently decided that Johnson Controls' refusal to hire a fertile woman, pursuant to the same policy at issue here, violates state law. Johnson Controls v. California Fair Employment & Housing Comm., 218 Cal. App. 3d 517 (1990). That court disagreed with the Seventh Circuit about the scientific validity of the policy, relying heavily on the findings made by OSHA.

Unlike the Seventh Circuit, the California court incorporated the technical

assessments made by OSHA,[39] and did not attempt to replicate an extensive and technical process that poses unacceptable demands on both the litigants and the courts, for which, as this case reveals, they are ill-equipped.

### B. The Court Below Ignored Necessary Elements Of Risk Assessment And Risk Management That Are Critical To Protecting All Workers.

Achieving rational workplace health protection requires both "risk assessment" and "risk management," to identify unacceptable risks to health and well-being and to undertake rational steps to reduce

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[39] This is entirely appropriate when the regulatory agency has considered the very issues raised in the lawsuit. Employers are compelled to seek guidance from OSHA to address new occupational health problems, precisely because the statute does not allow employers to exercise discretion in deciding how to cure such problems. See General Electric Co. v. Secretary of Labor, 576 F. 2d 558, 561 (3d Cir.1978).



or eliminate them.[40] The process has been similarly described for many kinds of health risks:

> Risk assessment defines the adverse health consequences of exposure to toxic agents....Risk management combines the risk assessment with the directives of regulatory legislation, together with socioeconomic, technical, political and other considerations, to reach a decision as to whether or how much to controls exposure to the suspected toxic agents.
>
> Risk assessment includes one or more of the following

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[40] Translating scientific assessments into legal or regulatory decisions is a task fraught with many challenges under the best of circumstances. See, e.g., Latin, supra n. 38; Note, supra n. 38; Huber, Safety and the Second Best: The Hazards of Public Risk Management in the Courts, 85 Col. Rev.L. 277 (1985). While not trouble-free, the regulatory process offers certain advantages over the case-by-case approach to occupational health. Rulemaking encompasses a much greater range of opinions, which are in turn evaluated by trained scientists. The enabling statute may provide policy directives that are critical in the absence of scientific certainty. For example, the OSH Act specifically instructs the Secretary to promulgate standards on the basis of "the best available evidence," in order to avoid regulatory paralysis. 29 U.S.C. §655 (b)(5).

components: hazard identification, dose-response assessment, exposure assessment, and risk characterization.[41]

Reproductive risk assessment may require certain additional considerations:

> The level of concern for a developmental toxic effect is related to several issues, including the relative toxicity of an agent to the offspring versus the adult animal, and the longterm consequences of findings in the fetus or neonate.[42]

The court of appeals misapprehended the basic approach necessary to evaluate the risks of lead exposure, as evidenced by its disregard for certain critical principles: 1) reliance on experimental

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41/ Environmental Protection Agency, Guidelines for Carcinogenic Risk Assessment (hereinafter, "EPA Cancer Risk Guidelines"), 51 Fed. Reg. 33992, 33993 (1986).

42/ Environmental Protection Agency, Guidelines for the Health Assessment of Suspect Developmental Toxicants (hereinafter, "EPA Developmental Risk Guidelines"), 51 Fed. Reg. 34028, 34033 (1986).



data is essential to identify and quantify risks; 2) evidence of injury to the male reproductive system is highly significant and cannot be disregarded simply because its full significance for pregnancy outcome may not yet be known; and 3) risk management requires consideration of the benefits and detriments of various policy options, all technologically feasible means of reducing or eliminating risks, and policies that will encourage adoption of risk-free alternatives. Because the court below apparently perceived its task as simply resolving a dispute between a group of workers and their employer, and failed to appreciate the ramifications of the ruling for all Johnson Controls' workers and others, this essential inquiry was not even attempted.

### 1. The Relevance of Experimental Data In Risk Assessment.

As evidenced in virtually all federal regulations dealing with toxic risk assessments, experimental data based on studies of animals are a critical element of the process of risk assessment. Human epidemiological studies

> are inherently capable of detecting only comparatively large increases in the relative risk....Negative results cannot prove the absence of [risk]...[43]

Human epidemiology "can rarely be used to make a causal inference," id. at 33995, and requires assessment after the fact of human injury, which experimental data seeks to predict and avoid. Furthermore, as a practical matter,

> [r]eliable epidemiologic data on long-term human risks cannot exist for recently introduced toxic substances and is rarely available for chemicals in longstanding use. Thus, most attempts to regulate toxic hazards must rely on extrapolation of human risks from animal test data.[44]

The significance of animal data in assessing human reproductive risk has been specifically noted:

> [A]n agent that produces an adverse developmental effect in experimental animal studies is assumed to pose a potential hazards to humans.... This assumption is based on the comparison of data for known human developmental toxicants. In almost all cases, the experimental animal data would have predicted a developmental effect in humans.[45]

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[43] EPA Cancer Risk Guidelines, supra n. 41, 51 Fed. Reg. at 33995-96.



[44] Latin, supra, n. 38 at 103.

[45] Environmental Protection Agency, Proposed Amendments to the Guidelines for the Health Assessment of Suspect Developmental Toxicants (hereinafter, "EPA Proposed Amendments to Developmental Risk Guidelines"), 54 Fed. Reg. 9386, 9390 (1989).

Similarly, in the detection of agents capable of altering genetic material in sperm or ova (mutagens), creating a risk of heritable or transmissible injury to future generations after exposure of either parent, it is "appropriate to rely on data from experimental animal systems...." 46/ This is because "it is difficult to obtain" epidemiologic data: large populations need to be studied over an extensive time period, since some heritable disorders may only be observable after two or more generations. Reliance on experimental data avoids some of these problems and, in addition, is justified because "chemicals causing genetic effects in one species or test system frequently cause similar effects in other species or systems." Id.

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46/ Environmental Protection Agency, Guidelines for Mutagenicity Risk Assessment, 51 Fed.Reg. 34006, 34008 (1986).



Animal data is thus particularly important in assessing reproductive risks, since human experimentation is unacceptable. In fact, animal data might have predicted that dibromochloropropane ("DBCP") could cause male sterility,47/ and that thalidomide would cause birth defects.48/ EPA notes:

> Comparisons of human and experimental animal data have been made for a limited number of agents that are human developmental toxicants. In these comparisons, there was almost always qualitative concordance of effects between humans and at least one species tested....

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47/ Dep't of Labor, Occupational Safety and Health Admin., Occupational Exposure to 1,2-Dibromo-3-Chloropropane (DBCP), 43 Fed.Reg.11514, 11517 (1978); Environmental Protection Agency, Intent to Cancel Pesticide Products Containing Dibromochloropropane (DBCP), 50 Fed. Reg.1122 (1985) (DBCP also mutagenic and carcinogenic in animals).

48/ EPA Proposed Amendments to Developmental Risk Guidelines, supra n. 45, 54 Fed.Reg. at 9390.

Id. Because of the desire to avoid tragedies like those associated with DBCP and thalidomide,[49] virtually every federal agency charged with the regulation of substances that could have adverse health effects relies on experimental data.[50] Yet the court of appeals discounted

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[49] Evidence of an agent's toxicity ordinarily prompts removal of the toxic agent. For example, DBCP was quickly banned for most uses, and several employers voluntarily suspended its use even before they were required to. See 43 Fed.Reg. 11514-15 (1978)(OSHA) and 50 Fed.Reg.1123-24 (1985)(EPA). Thalidomide was never approved by the FDA, even though it may provide valuable treatment for leprosy and other diseases. Blakeslee, Scorned Thalidomide Researched Anew, New York Times, Apr. 10, 1990, C3. In the occupational context, however, primarily in industries in which women workers are in the minority, evidence of pregnancy related risks, even when accompanied by other risks, has prompted the removal of women workers, not efforts to reduce the hazard. See Paul, et al., Corporate Response to Reproductive Hazards in the Workplace: Results of the Family, Work and Health Survey, 16 Am.J.Indust.Med. 267 (1989).

[50] See the extensive discussion of animal data in the regulatory context, and court decisions approving reliance on such data, in the brief amicus curiae for the Natural Resources Defense Council.



evidence of risk derived from animal data as "speculative and unconvincing," and not "solid scientific data." Pet.App. 34a.[51] In so finding, the lower court ignored evidence that health regulators and most scientists deem critical in assessing risk.

### 2. The Significance Of Evidence Of Male Reproductive Dysfunction

The court of appeals discounted evidence of male reproductive injury, reducing it to evidence of "changes in sperm shape." Pet.App. 34a. Even if the record in the case went no further, which it does, such injury would still merit

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[51] Ironically, expert opinion on which the court relied was also based on animal data. See, e.g., Deposition of E.K.Silbergeld, Ph.D., Feb. 18, 1986, at 49-52, specifically cited by the lower court. Pet. App. 15a. Moreover, the UAW relied on more than "just" animal studies. See, for example, Jt. App. 202-22 (Silverstein Deposition). In other contexts, industry representatives have challenged the significance of human data of reproductive risk on methodological grounds. E.g., United Steelworkers v. Marshall, 647 F.2d at 1257-58.

attention and concern in developing workplace health policies.

Male exposures to toxic agents can affect not only a couple's fertility but also the course of pregnancy, pregnancy outcome, and potentially the health of a future child: "The effects of parental exposure before conception to agents toxic to reproductive functions may be evident as reduced fertility, unsuccessful fertilization or implantation, or an abnormal fetus." Centers for Disease Control, Leading Work-Related Diseases and Injuries -- United States, 34 MMWR 537 (1985).52/ This is because

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52/ Toxic substance can affect the normal development of the fetus at three stages of the reproductive process. Gametotoxins are substances which cause defects to the egg or sperm prior to conception, thereby impairing the exposed individual's ability to contribute to the conception of a healthy fetus. Mutagens cause alterations in the chromosomal structure or the DNA (continued...)



> [a]dverse pregnancy outcomes can occur as a result of preconception damage to the germ line of the male or female. Mutagenic damage to the DNA contained in sperm or ova can result in heritable defects leading to embryolethality, congenital malformations, or genetic disease in offspring ....Paternal exposures may be responsible for adverse pregnancy outcomes. Mutagenic insult to developing spermatozoa, for instance, can have adverse consequences both for the male himself and for the fetus.53/

EPA agrees that "adverse effects on the developing organism...may result from exposure prior to conception (either

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52/ (...continued) molecule in the adult male and female reproductive cells or fetal cells, and can be manifested by abnormal fetal development (including birth defects) and genetic defects in later generations. Teratogens are substances that operate directly on the fetus and impair normal growth after conception. Strobino, Klein & Stein, Chemical and Physical Exposures of Parents: Effects on Human Reproduction and Offspring, Early Human Development 371 (1978) at 371-378.

53/ M.E.Paul, Reproductive Fitness and Risk, 3 Occupational Medicine: State of the Art Reviews 323, 328 (1988).

parent)."[54/] The consequences can be severe:

> Mutations carried in germ cells may be inherited by future generations and may contribute to genetic disease....Such genetic abnormalities can lead to structural or functional health impairments. These conditions may be expressed _in utero_; at the time of birth; or during infancy, childhood, adolescence, or adult life; they may be chronic or acute in nature.[55/]

Evidence that an agent causes alterations in sperm shape is particularly important,

> [b]ecause of the observed correlation between an agent's mutagenicity and its ability to induce abnormal sperm forms....An increase in abnormal sperm morphology has been considered supportive evidence that the agent has gained access to the germ cells. Exposure of males to toxic agents may lead to sperm abnormalities in their progeny. However, transmissible germ-cell mutations could exist in the absence of any warning indicator....[56/]

Sperm studies may act as a kind of early warning system for reproductive risk. EPA has recognized the "unique vulnerability of the male reproductive system since toxic agents, acting through a variety of direct and indirect pathways, can evoke adverse responses."[57/] Indeed, NIOSH recommends studies of semen quality to "help identify workplaces where some types of hazards to reproduction exist, preferably before irreversible testicular

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[54/] EPA Developmental Risk Guidelines, _supra_ n. 42, 51 Fed.Reg. at 34030.

[55/] EPA Guidelines for Mutagenicity Risk Assessment, 51 Fed.Reg. at 34007 (1986). _See also_ EPA Proposed Amendments to Developmental Risk Guidelines, _supra_ n. 45, 54 Fed.Reg. at 9390.



[56/] Environmental Protection Agency, Proposed Guidelines for Assessing Male Reproductive Risk, 53 Fed.Reg. 24850, 24858-59 (1988)(references omitted).

[57/] _Id._ at 24852.

damage or other profound disorders of reproduction occur."[58/]

Numerous studies suggest a correlation between preconception paternal occupational exposures and illness or injury in later born children. Most recently, childhood cancer has been traced to fathers' preconception occupational radiation exposure.[59/] Effects on offspring of male lead workers have long been reported.[60/] Given that approximately 70% of all birth defects are of unknown origin,[61/] any rational attempt to address reproductive health could not ignore evidence of injury to sperm.

### 3. Risk Management Is Essential To Rational Occupational Health Policy.

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[58/] Ass'n of Schools of Public Health and National Institute for Occupational Safety and Health, Proposed National Strategies for the Prevention of Leading Work-Related Diseases and Injuries, Part 2, at 8 (1988). This document notes that "[a]ll undisputed episodes of occupational disorders of reproduction in the recent past have involved male workers." Id.

[59/] M.J. Gardner, et al., Results of Case-Control Study of Leukaemia and Lymphoma Among Young People Near Selafield Nuclear Plant in West Cumbria, 300 Br. Med. J. 423 (1990). See also Daniell & Vaughan, Paternal Occupation and Brain Cancer in Offspring: A Mortality-Based Case-Control Study, 14 Am.J. Ind. Med. 299 (1988); Cassidy, et al., Occupational Hydrocarbon Exposure Among Fathers of Prader Willi Syndrome Patients With and Without Deletions of 15q, 44 Am. J. Hum. Genetics 806 (1989); Olshan, et al., Paternal (continued...)



[59/] (...continued) Occupational Exposures and the Risk of Down Syndrome 44 Am.J.Hum. Genetics 646 (1989). Savitz, "Childhood Cancer," Occupational Medicine State of the Art Reviews: Reproductive Problems in the Workplace (Z. Stein & M. Hatch, eds.) 415 (1986) (reviewing literature). And see Jt.App. 202-22 (Silverstein Deposition).

[60/] Hamilton, supra n. 37, at 111, 114 ("lead poisoning in the father affects the offspring disastrously,...[n]ervous disorders' [were most pronounced] if both parents were leaded," and lead causes "injury to the paternal germ cell.") There is no evidence that this effect has a threshold below which effects do not occur. Jt.App.228 (Silbergeld Deposition).

[61/] EPA Developmental Risk Guidelines, supra n. 42 at 34028.

As a general proposition, private litigation focussing on a specific risk or dispute may fail to advance, and may even undermine, overall health policy by failing to undertake a sufficiently comprehensive analysis.

> Litigation is almost certain to ignore the difficult half of the excess risk calculation, dismissing it as too speculative to be worth the effort. Nevertheless, if prudent risk management is the ultimate objective, we cannot conduct only one half of the risk calculation.[62]

Johnson Controls' policy creates additional risks for women workers as well as their current and future children. Unemployment, under-employment, and the resulting poverty occasioned by the denial of desirable employment to women workers can have disastrous effects on children and

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62/ Huber, supra n. 40 at 326.



the health of pregnant workers, as Congress specifically recognized in its deliberations about the importance of full employment opportunities for women.[63] In Title VII, Congress struck the balance so as to recognize these considerations, and to allow women to make employment-related risk determinations for themselves. Thus, the difficult half of the excess risk calculation, supra p. 56, has already been addressed, a fact the lower court failed to appreciate.

Even if Title VII did not mandate this result, rational health policy would

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63/ Industrial employment is particularly important for unskilled and uneducated women, for whom few other employment opportunities are available at decent wages. In addition to loss of income, women may lose insurance benefits and suffer in their nutrition, housing, and general level of well-being, if they are denied this type of employment. These effects are documented in the Brief amici curiae, of the American Civil Liberties Union, et al.

require consideration of these risks as well as alternatives to the policy at issue, including industrial hygiene technology that is available to reduce risk. The decision below would permit decisions based on specific evidence of implementation costs. This result rewards the least efficient employers and, discourages innovation in the industry as a whole. Individual employers, may not always be motivated to explore innovative approaches to workplace safety problems, precisely because they are likely to cost something to implement, and may disrupt production.

Regulatory agencies develop policy based on industry-wide cost/benefit and considerations. OSHA is directed to develop "innovative methods, techniques, and approaches for dealing with



occupational safety and health problems," 29 U.S.C. §651(b)(5). The feasibility requirement of the statute is directed to the industry as a whole, and not to individual employers, precisely because the goal is to institutionalize the best technology available, rather than the worst.64/

Regulatory agencies, have access to a broad base of information about technology that is currently available or in development, have the expertise to evaluate its uses, and can assess costs and feasibility for the industry as a whole. The decision below fails to account for specific proposals in the industrial hygiene literature for methods of reducing

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64/ See United Steelworkers of America v. Marshall, 64 F.2d at 1264-66; Asarco, Inc. v. Occupational Safety and Health Admin., 746 F.2d 483, 495-6 (9th Cir. 1984).

lead exposures in battery making facilities. Ventilation, engineering controls, isolation of certain tasks, air plenums, and vacuum systems are among the techniques recommended in standard texts,[65] and more innovative approaches are being explored.[66] Knowledge of all these developments is critical to risk management as well as the feasibility assessment under OSHA.

These principles explain why Johnson Controls is obligated to seek guidance from

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65/ Bullock, "Lead-Acid Battery Manufacturing," in Industrial Hygiene Aspects of Plant Operations 599-633 (Cralley and Cralley, eds.) (1985). Mr. Bullock, corporate industrial hygienist at Johnson Controls, demonstrates the success of a number of these methods in reducing lead levels below 30 ug/dl. Id. at 619.

66/ For example, the Toxic Use Reduction Institute in Massachusetts was established in part to undertake research on substitution of safe substances for hazardous ones. Geiser, Toxics Use Reduction and Pollution Prevention, 1 New Solutions 1 (1990). Other states are considering similar approaches. Id.



OSHA in achieving compliance with the Lead Standard or improving on it. For example, OSHA is undoubtedly aware of the substantial body of scientific evidence on substitutes for lead-acid batteries. For example Nickel-Cadmium (NICAD) batteries are currently used in some situations. Another alternative is the Nickel-Iron (Edison) battery which was used extensively for engine starting in the first automobiles (1910-20) and is currently used as the only means of energy in underground trains used in mining operations. Research and development of this battery as a possible substitute for lead-acid batteries is ongoing.[67]

There is a substantial federal effort to study new battery technology for all

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67/ See generally Perez, The Complete Battery Book (1985).

applications. The Department of Energy has developed an accessible data base of characteristics of batteries which could be used to explore substitutes for the lead-acid battery.[68/] Indeed, research on Zinc-Bromide batteries in Johnson Controls has been sponsored by the federal government for the last 5 years,[69/] a fact that was omitted from the record in this case.

Even if various alternatives and control technologies were not possible, and this type of work could not be made safer, there would still be no basis for "solving" the workplace health problem by arbitrarily

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68/ Burke, et al., "A Battery Data Base for Electric Vehicle Applications" in Proceedings of the 5th Annual Battery Conference on Applications and Advances (1990).

69/ Dodge and Elder (Advance Battery Business Unit, Johnson Controls, Inc.), "Recent Advances in Zinc/Bromide Technology at Johnson Controls Inc." in Proceedings of the 5th Annual Battery Conference on Applications and Advances (1990).



discriminating. This situation would represent the quintessential risk management problem that must be resolved on a national level, by a determination whether the product is essential, whether it should be banned, or whether public funds should be expended to reduce or insure risks if the barrier to safety is cost-based. These decision will depend on as objective an assessment as possible of the precise nature of the risks and the state of technology for reducing them, as well as policy considerations. As this Court has noted, reviewing technical arguments, balancing competing interests, or creating "high policy" "is the business of elected representatives." See, e.g., Diamond v. Chakrabarty, 447 U.S. 303, 317 (1980) (court's function to enforce plain language of federal statute).

Because science can so rarely, if ever, provide definitive answers, Congress wisely established policies in the OSH Act and Title VII to secure non-discrimination in employment and to achieve workplace safety at the most protective level feasible. The dispositive "risk management" decision in this case has thus been made. Deviation from the Congressional choices led the court below to endorse an approach that, for the reasons set out above, would ultimately disserve the public health and the very individuals the policy purports to protect.



## CONCLUSION

Wherefore, amici urge the Court to reverse the decision of the Seventh Circuit and remand with instructions to enter judgment for petitioners.

Respectfully submitted,

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## APPENDIX

### Statements of Interest of *Amici Curiae*

The **AMERICAN PUBLIC HEALTH ASSOCIATION**, founded in 1872, is a non-governmental society whose membership, including its state and local affiliates, is comprised of approximately 50,000 health professionals interested in promoting high scientific standards, action programs and public policy for good health. Its reproductive health policy, adopted in 1979, "condemns the corporate practice of forcing women to choose between their jobs and the right to reproduce [and urges governmental agencies to develop] occupational exposure standards that protect women, men, and the fetus."

The **AMERICAN NURSES' ASSOCIATION** is both the professional association for registered nurses and a labor organization.

Through its constituents, ANA represents registered nurses and other health care workers who are at continuous risk of workplace exposure to mutagenic and teratogenic materials. ANA opposes sex-based occupational exclusion policies which fail to mitigate reproductive risks for both sexes and which have a disproportionate economic impact on women.

The **AMERICAN SOCIETY OF LAW & MEDICINE** was founded in 1972 to provide a forum for interdisciplinary discussion of the complex issues at the interface of law, medicine and health. Ongoing informational efforts include the publication of two quarterly journals, Law, Medicine and Health Care, a leading forum for interprofessional analysis of current issues, and the American Journal of Law and Medicine, a law review co-published with the Boston



University School of Law. For the reasons stated in the attached brief, the Society opposes discriminatory policies that undermine public health goals.

The **ASSOCIATION FOR WOMEN IN SCIENCE** (AWIS), a national educational and scientific organization of 3,200 members, works to expand educational and employment opportunities for women in diverse scientific fields. AWIS opposes discrimination in the workplace and has worked to establish greater equity in the labor force. In addition, AWIS opposes the misuse, abuse or inappropriate application of science. AWIS favors the development of workplace standards that establish healthy working conditions for all workers; this includes the development of standards that protect women, men and the fetus.

The **DEPARTMENT OF PUBLIC HEALTH, COMMONWEALTH OF MASSACHUSETTS (DAVID H. MULLIGAN, COMMISSIONER)** was founded one hundred and twenty years ago. It is the oldest state department of health in the United States. The Department is mandated to "take cognizance of the interests of life, health, comfort and convenience among the citizens of the Commonwealth." M.G.C. c. 111 §5. The Department has an interest in protecting the health of its citizens in the workforce and their families. In 1988 the Department published the findings from its survey of Massachusetts employers' reproductive hazards policies and programs -- the only such study that has been conducted in the United States.

The **ENVIRONMENTAL DEFENSE FUND (EDF)** is a non-profit advocacy organization with over 150,000 members nationwide. Since its



founding in 1967, EDF has been involved in efforts to reduce human exposure to environmental toxins, including substances such as lead. EDF has participated extensively in administrative, judicial and legislative proceedings on the control of lead in gasoline, drinking water, incinerator ash, point source emissions, consumer products, and in the workplace. EDF's concerns about lead toxicity extend to male-mediated effects of lead on reproductive function as well as female-mediated reproductive effects and other health effects on adults and children of both sexes.

The **EXECUTIVE OFFICE OF LABOR, COMMONWEALTH OF MASSACHUSETTS (PAUL J. EUSTACE, SECRETARY OF LABOR)** was established to promote and protect the legal, economic, health and safety

interests of Massachusetts workers. Through its Department of Labor and Industries the Secretariat investigates and regulates places of employment to prevent and address workplace health hazards, including reproductive health hazards, in order to protect the health and safety of workers. Massachusetts was one of the first twelve states in the country to realize the importance of workplace health hazards by creating in 1934 a Division of Occupational Hygiene within the Department of Labor and Industries to investigate workplaces and promote health and safety education.

The **OCCUPATIONAL AND ENVIRONMENTAL REPRODUCTIVE HAZARDS CLINIC AND EDUCATION CENTER**, University of Massachusetts Medical Center (Maureen E. Paul, M.D., Director) opened in March of 1988 in response to



growing public and provider concerns about toxic exposures and the special needs of patients faced with potential reproductive health risks. The main objective of the Center is to provide to patients and health care providers accurate and up-to-date information regarding the effects of toxic exposures on the reproductive health of women as well as men, whose reproductive health needs are often ignored. Dr. Paul's publications in the area of reproductive health include: Reproductive Fitness and Risk, 3 Occup. Med. 323 (1988); Corporate Response to Reproductive Hazards in the Workplace: Results of the Family, Work, and Health Survey, Am. J. of Indust. Med. 267 (1989); Reproductive Hazards in the Workplace: What the Practitioner Needs to Know About Chemical Exposures, Obstetrics & Gynecology 921 (1988).

The **SOCIETY OF AMERICAN LAW TEACHERS** ("**SALT**") is a national organization of over five hundred legal educators at over one hundred law schools. SALT is committed to promoting public service by the legal professions and to advancing justice and protecting human rights. SALT is committed to the goals of Title VII, which include equal employment opportunities for women. SALT is also concerned about workplace safety for all workers and their children. SALT believes that the Court of Appeals for the Seventh Circuit erred in upholding Johnson Control's fetal vulnerability policy. It objects to Johnson Control's policy because it denies employment health of all workers and their children.

**TOXICS USE REDUCTION INSTITUTE, UNIVERSITY OF LOWELL, MASSACHUSETTS** is a multi-disciplinary research, education and



policy center which will commence formal operations in the fall of 1990. The Institute will sponsor research, conduct training and provide technical support to promote reduction in the use of toxic and hazardous chemicals in industry and commerce.

**NICHOLAS A. ASHFORD, J.D., PH.D.** is Associate Professor of Technology and Policy at the Massachusetts Institute of Technology. He has written extensively regarding reproductive hazards in the workplace. His publications include "Legal Considerations of Reproductive Hazards in Industry in the United States," in Pregnant Women at Work, edited by Geoffrey Chamberlain (The Royal Society of Medicine and The Macmillan Press Ltd., London, 1984), and "The Control of Reproductive Hazards in the Workplace: A Prescription

for Prevention," (with Charles C. Caldart), Industrial Relations Law Journal, Volume 5, Issue 3, pp. 523-565 (1983).

**DAVID BELLINGER, PH.D.,** is a professor at the Harvard University School of Medicine. He has done extensive research on the effects of lead on childhood development. He joins this brief because his research was cited by Johnson Controls as supporting its sex-based policy, a conclusion he believes is insupportable. He seeks to ensure that his research is placed in its proper biological and epidemiological context.

**EULA BINGHAM, M.D.** is a professor of environmental health at the University of Cincinnati College of Medicine. She was the Assistant Secretary of Labor for the Occupational Safety and Health Administration (OSHA) from 1977 through



January, 1981, during which time OSHA's lead standard was promulgated. Thus, she was the government official responsible for reviewing and evaluating the submissions regarding OSHA's lead standard.

**VILMA R. HUNT, B.D.S.** is Consultant in Environmental and Occupational Health; Visiting Lecturer at Harvard School of Public Health; Adjunct Professor at the University of Lowell, Occupational Health Group. She has been Deputy Assistant Administrator for Health Research, Office of Research and Development, EPA; member of EPA's Science Advisory Board; Dr. Hunt has written extensively on health issues of concern to working women.

**SUSAN KLITZMAN, Dr. P.H.** is Director, Environmental Epidemiology Unit, New York City Health Department and Co-Chair of the Occupational and Environmental Health

Committee of the National Women's Health Network.

**PHILIP J. LANDRIGAN, M.D.** is The Ethel H. Wise Professor and Chair of the Department of Community Medicine at the Mount Sinai School of Medicine. Previously, he held numerous positions at the National Institute for Occupational Safety and Health (NIOSH) and the Centers for Disease Control (CDC), including Chief of Environmental Hazards Activity, Cancer and Birth Defects Division at CDC.

**MARC ALAN LAPPE, PH.D.** is Professor of Health Policy and Ethics in the College of Medicine of the University of Illinois at Chicago. He is the author of numerous publications which deal with toxic substances and health, the most recent of which is Chemical Deception, Ten Myths About Toxic Substances (forthcoming), and



has authored articles on metal toxicity during pregnancy and the ethics of screening for differential genetic susceptibility to airborne hazards. He is a Fellow of the Hastings Center and a founding member of the Bioethics Committee of the March of Dimes/National Foundation.

**MARVIN S. LEGATOR, M.D.** is Director of Environmental Toxicology, Department of Preventive Medicine and Community Health, University of Texas Medical Branch. He served for ten years as Chief, Genetic Toxicity Branch of the FDA, and was Chairman of the March of Dimes Committee on Reproductive Hazards. Dr. Legator has written extensively in the areas of genetics and toxicology.

**DONALD R. MATTISON, M.D.** is a Professor of Obstetrics and Gynecology and Professor of Interdisciplinary Toxicology

at the University of Arkansas for Medical Sciences. He is the Chairman of the Human Toxicology and Risk Assessment Program, National Research Council of the National Academy of Sciences and has published extensively on reproductive toxicology.

**DAVID MICHAELS, PH.D., M.P.H.** is Director of the Division of Public Health, Department of Epidemiology & Social Medicine, Montefiore Medical Center, Albert Einstein College of Medicine.

**HERBERT L. NEEDLEMAN, M.D.,** is a professor at the University of Pittsburgh School of Medicine who has done extensive research on the effects of lead on childhood. He joins this brief because his research was cited by Johnson Controls as supporting its sex-based policy, a conclusion he believes is insupportable. He seeks to ensure that his research is



placed in its proper biological and epidemiological context.

**ANTHONY ROBBINS, M.D.** is Professor of Public Health, Boston University School of Public Health, Environmental Medicine Program. Dr. Robbins was the Director of the National Institute for Occupational Safety and Health ("NIOSH") from 1978-1981.

**JOHN F. ROSEN, M.D.** is the Head of the Division of Pediatric Metabolism at the Albert Einstein College of Medicine. In 1984, he served as the Chairman of the Centers of Disease Control's Advisory Committee on Childhood Lead Poisoning Prevention, which has been cited by Johnson Controls in support of its policy. Dr. Rosen does not concur with the conclusions drawn by Johnson Controls from this report. The CDC looked only at the devastating effects of lead on children and concluded

that all exposures should be reduced. A study focussing on other subgroups in the population, such as males with high blood pressure or otherwise at risk of cardiovascular disease, would undoubtedly render a similar recommendation for that population. Dr. Rosen's research has demonstrated lead's toxic effects on all segments of the exposed population. Recently, he and others have documented a risk of endogenous lead poisoning in children with pre-existing lead exposures who are immobilized as a result of bone fracture, and this is a result that would be expected to occur in adults as well.

**JEANNE STELLMAN, PH.D.** is Associate Professor of Clinical Health, School of Public Health, Columbia University. Dr. Stellman has been Executive Director of the Women's Occupational Health Resource



Center, Editor of Women and Health, and has published widely on the subject of the health needs of women workers. Dr. Stellman is a current recipient of a Guggenheim Fellowship.

## DIRECTORS OF OCCUPATIONAL MEDICINE PROGRAMS

The following are directors of university and hospital affiliated occupational medicine programs. As specialists in the relationship between diseases and work or environment, they are especially concerned with preventing occupational health hazards. Their organizational affiliations are listed for identification purposes only:

**EDDY BRESNITZ, M.D.**, Director of Occupational and Environmental Medicine at the Medical College of Pennsylvania, Philadelphia, Pennsylvania.

**MARK CULLEN, M.D.**, Director of Yale-New Haven Occupational Medicine Program.

**STEVE HESSL, M.D.**, Associate Professor of the Medical Section of Environmental and Occupational Medicine, University of Illinois at Chicago School of Medicine.

**LINDA ROSENSTOCK, M.D.**, University of Washington, Occupational Medicine Clinic.

**LAURA WELSH, M.D.**, Director, Occupational Medicine Program, George Washington University School of Medicine.